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Canada emerging as a powerhouse in the global EV supply chain

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Ambitious goals to decarbonize the economy, combined with global geopolitical dynamics, have created favourable conditions for Canada to emerge ahead of the pack as a powerhouse in the global supply chain for electric vehicles (EVs) and other energy transition products.

Canada's leadership position can be attributed to competitive, political, economic and legal advantages, all of which combine to create a foundation for growth in 2024 and beyond. This leadership is diversified throughout the supply chain, beginning with the exploration and development of domestic critical mineral capacity and extending through the supply chain to battery and advanced manufacturing and recycling. We expect Canadian lawmakers to continue to provide incentives and to implement measures aimed at removing legal and economic barriers at key points in this supply chain to maintain the country's prominent position in the market.

Investments in the EV supply chain

Canada's competitive advantage is evidenced by the significant number of major EV supply chain projects recently completed or that are underway. Investments are being made at all levels of the supply chain, beginning with mining issuers and including producers of battery materials and manufacturing facilities.

Many of these projects involve global leaders in the processing of critical minerals working in partnership with some of the world's largest manufacturers of automobiles. Examples include GM-POSCO's production of cathode active materials in Bécancour, Québec, supported by federal and Québec government incentives of almost $300 million and Ford-SKO-ECO's production of cathode active materials – also in Bécancour – supported by federal and Québec government incentives of more than $600 million. In Windsor, Ontario, investments in Stellantis-LGES's EV battery plant are supported by federal and Ontario government performance incentives of up to $15 billion.

These investments are only the beginning. It is all but certain that the year ahead will have many more announcements of transformative projects.

Numerous competitive advantages

Canada's numerous competitive advantages make it a leading market for investments at all stages of the supply chain.

For example, there can be no energy transition without critical minerals and Canada is a major producer of many of them, including cobalt, nickel and aluminum. The country also has a significant endowment of other critical mineral deposits, including lithium, rare earth elements and copper. Canada has been a global leader in mining for decades and is currently home to almost half of the world's publicly traded mining and mineral exploration companies. The market for mining issuers remains robust with a supportive investor base and a stock exchange focused on being the leader in mining capital.

In addition, Canada is blessed with an abundance of low-carbon energy sources – including hydroelectricity, nuclear generation, wind and solar – providing low-carbon, low-cost electricity to supply chain production facilities. A prime location for ethically sourced minerals, Canada is recognized as a world leader in environmental, social and governance standards in the mining sector.

Home to a large domestic automotive industry, Canada has entered into free trade agreements with major automobile producing jurisdictions, including the United States, the European Union and many other automotive intensive countries, such as the Republic of Korea and Japan.

The Canadian workforce is highly skilled and diverse and benefits from strong government support for research and development activities. Moreover, for the past century, Canada has had a vibrant manufacturing supply chain for traditional combustion engine vehicles (CEVs), expertise that it can leverage to jumpstart its EV supply chain.

Finally, previously established supply chains for the production and processing of critical minerals are geographically concentrated, making them vulnerable to geopolitical, economic and other risks. By contrast, Canada is recognized as a low-risk political environment.

Law and policymakers provide tax and other incentives

Fostering and building on these competitive advantages has become a key element of industrial policy at both the federal and provincial levels of government, leading to the introduction of certain legal and economic measures to provide incentives to investors in the EV supply chain.

For example, through its Critical Minerals Strategy and related budget commitments, the Government of Canada is making significant financial investments in critical minerals, including $1.5 billion of prioritized funding under the Strategic Innovation Fund for advanced manufacturing, processing and recycling projects, and $79 million for public geoscience to improve identification and assessment of critical mineral deposits.

Many advantageous tax incentives are available at the federal and provincial levels. For instance, the Government of Canada recently introduced a refundable Clean Technology Investment Tax Credit. This tax credit is equal to 30% of the cost of certain new machinery and equipment used for clean technologies, including critical mineral extraction processing and recycling. In addition, the Government of Canada has announced that certain expenses relating to mining lithium from brines will be treated as Canadian exploration expenses (CEE) and Canadian development expenses (CDE) eligible for flow-through treatment for tax

purposes.

These new measures are in addition to general tax incentives that are available to participants of the EV supply chain, including the federal and Québec Scientific Research and Experimental Development (SRED) tax credits and the Québec 10-year tax holiday for eligible large investments. The latter provides a deduction in computing taxable income at a rate of up to 25% of the cumulative total of eligible project expenditures.

Québec's industrial strategy to promote development of its aluminum industry is also important. Led by Hydro-Québec's efforts to draw in key industrial players through attractive electricity costs, the annual production of aluminum in the province, which is among the greenest in the world due to hydroelectric power and other sources of low carbon energy, has grown to 2.8 million tons.

Economic, legal and investment trends in the years ahead

We expect Canada to maintain its leadership position as we move into 2024 due to a number of factors.

Direct investment by original equipment manufacturers (OEMs) is likely to continue. The industry-wide race to bring EVs to market and the fragility of global supply chains has taken supply chain resilience to a new level of importance. This means the emphasis on outsourcing that typified the auto sector in recent decades is unlikely to return anytime soon. Rather, we expect that OEMs will continue to play a direct role in both developing and supporting new supply chain projects in Canada.

Direct investments by OEMs are likely to cover all elements of the EV supply chain, including exploring for and mining critical minerals. Competition among OEMs to source secure and responsibly mined supplies of critical minerals has led to OEMs investing directly in mining projects and mining companies, even those not yet in production. GM's US$650 million equity investment in Lithium Americas – the largest-ever investment by an automaker to produce battery raw materials – is an example of the type of investments in the mining sector that we expect to see in the future.

Despite a challenging market environment for the mining sector in general, junior exploration companies are gaining traction with critical minerals projects which are attracting the attention of major producers and alternative financing sources. We expect this trend to continue.

Legal initiatives are being implemented to further protect the supply chain, particularly at the mineral extraction stage. The Government of Canada has issued a policy to clarify how the *Investment Canada Act* will be applied to investments in Canadian entities and assets in the critical minerals sectors by foreign state-owned enterprises (SOE). We expect to see net-benefit approval of acquisitions of control of a Canadian business involving critical minerals by a foreign SOE only on an exceptional basis. We also anticipate that there will continue to be enhanced scrutiny under the national security review regime.

We expect to see the continued emergence of a circular economy in respect of critical minerals, with sustainable growth among Canadian companies focused on battery recycling, including Retriev Technologies in British Columbia, Li-Cycle in Ontario and Lithion Technologies in Québec.

Canada has bilateral cooperation agreements regarding critical minerals in place with the United States, the European Union and Japan. We expect to see more cooperation

agreements going forward, potentially with the United Kingdom and the Republic of Korea.

Many international firms are leaders in multiple elements of the EV supply chain, including mineral extraction, intermediate processing and battery production. The expertise of these firms, combined with favourable trade agreements and tax credit eligibility, make them highly desirable partners for OEMs and other domestic firms who are looking to enhance their market position or improve supply chain resilience. We expect that these factors will lead to continued growth in the presence of foreign firms in Canada's EV supply chain.

We expect to see continued high levels of investment in EV supply chain by the Government of Canada and its provincial counterparts. The *Inflation Reduction Act* in the United States has made it imperative for governments in Canada to support EV supply chain projects as they look to take advantage of what the Government of Canada has described as a "*generational opportunity for Canada's workers, economy, and net-zero future*."

Canada's auto and parts makers are investing billions of dollars to transition their existing manufacturing and supply chains from CEVs to EVs. Together with Canada's vibrant technology sector, we expect to see continued large scale investments in new production methods and technology innovations. We have also seen and will continue to see growth equity investments in the EV space. Charging networks, batteries, storage and vehicles themselves are attracting domestic and foreign capital into Canada.

Emerging challenges

To secure Canada's role in the EV supply chain, an efficient permitting process that accelerates timelines for bringing large projects to production will be vital. Although the Government of Canada has signaled that it plans to streamline permitting for mining projects for critical minerals, it is uncertain how exactly that will be done. Any such plan will need to ensure that Indigenous and treaty rights are respected.

Guaranteed access to low-carbon electricity with long-term pricing is also becoming more challenging to secure. At least in the near term, this trend may continue in part because of the scale at which large mining, processing and battery projects are being announced.

There is a lot riding on overcoming these challenges. Canada's emergence as a powerhouse in the global EV supply chain is clearly of importance to Canada's economic standing. As well, it may be even more important to the world, as skyrocketing demand and geopolitical factors make Canada an essential player in the global energy transition. To date, governments – both policymakers and lawmakers – have shown a strong willingness to invest in this area and to pass laws or implement policies designed to ensure long-term success.